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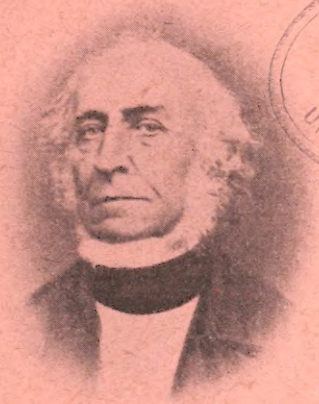

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DANIEL WILLIAM COQUILLETT.

ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION

ACADEMY OF NATURAL SCIENCES, PHILADELPHIA.

VOL. XXII. OCTOBER, 1911. No. 8.

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Daniel William Coquillett.

(Portrait, Plate X.)

Daniel William Coquillett was born January 23, 1856, on a farm in Pleasant Valley, between Woodstock and Marengo, Illinois, and died July 7, 1911, at Atlantic City, New Jersey, of heart failure.

It was with great regret that we heard of the death of our leading Dipterist. There are many who will miss his cheer, and his help in the determination of their finds in Diptera, and the United States National Museum has lost a valuable member of its staff.

He had been interested in insects as a young man on his father's farm in Pleasant Valley, and he contributed liberally to the literature of applied entomology. In 1881 he became Assistant State Entomologist of Illinois, but was compelled to remove to California for his health, where in 1885 he became field agent for the Division of Entomology of the United States Department of Agriculture, and continued as such until 1893, when he was transferred to Washington as an assistant to the Entomologist of the Department. In 1896 he was raised to the office of Honorary Custodian of Diptera of the U. S. National Museum, which he held at the time of his death.

While in California he did valuable work in the suppression of insect pests which were causing much damage, particularly the scale insects and locusts. He discovered and perfected the hydrocyanic gas treatment which is used to-day for the control of most of the scale insects, by the fruit growers of California and elsewhere. He also perfected a mash which successfully checked the onslaughts of the locusts or grasshoppers in Central California. It was through his careful thorough work that the parasite of the cottony cushion scale was established to destroy that pest.

Since 1883 he contributed many papers on biological and systematic Dipterology, especially the latter, which are invaluable to the students of North American Diptera. Among these are papers on the Bombyliidae, Asilidae, Empididae, Therevidae, Culicidae and Tachinidae which are monographs or synopses of most of the genera and species of these families. His last paper of note, entitled "The Type-Species of the North American Diptera" was completed a short time before his death, as the result of many years' study, and is of the utmost importance to students of this order. His work is to be classed with that of Loew and Osten Sacken in its importance, and his connection with the U. S. National Museum as custodian of Diptera gave him the opportunity to investigate and study along his special lines with the aid of the best collection. The work of determining the great mass of material received by the Museum, gave him little time to devote to the descriptions of new forms, so that we are now complaining of his short diagnoses. He described over 1000 species from North America and many from other parts of the world. His views regarding the limits of species, and on nomenclature were very conservative, and no amount of favor, sentiment or criticism would influence him in his opinions. That he was one of the greatest American Dipterists there is no doubt, and there are few if any who can fill his place as well as he did. He was a member of the Washington Academy of Science, the Washington Entomological Society (its president 1903-1904), the Entomological Society of America, the Association of Economic Entomologists, and the American Association for the Advancement of Science.—E. T. C., Jr.

Collecting in Southern Arizona.

By Karl R. Coolidge, Ceres, California.

One would scarcely think when viewing through a car window the barren saline alkali plains of southern Arizona and the various mountain stocks that loom up on all sides, that such a region could afford anything of particular interest to the entomologist. Yet these mountains, and especially the Huachucas, are as rich, if not richer than any other collecting grounds in the United States.

For the past thirty years or more, naturalists have collected here in all branches of biology, but new and interesting discoveries invariably greet the latest arrival, and it will be many years before we shall have obtained a satisfactory faunal knowledge. As we have no way of judging the future but by the past, I may presume then that in the coming years entomologists will continue to visit this region, and my object in presenting the article is that it may be of some service to future collectors. For, having strenuously gone through the mill myself, I can assure the intending entomologist that experience as a teacher here exacts heavy dues, and unless one is acquainted with the country and the conditions governed by its environment, he may lose much precious time, and otherwise suffer undesirable inconveniences.

The Huachuca Mountains, on the Sierra Espuela, as they were termed by the early explorers, lie in the extreme southwest corner of Cochise County, and are almost wholly within the United States, extending from the International line in a northerly and somewhat westerly direction to a distance of about forty miles, reaching the Barbcomari River, which empties into the San Pedro at Fairbanks. The range is composed of a single backbone or ridge, the highest point of which is Hasslops, or Miller Peak as it is better known, an elevation of 9472 feet, and the mountains rise to this from a base level of nearly 5000 feet. The western canyons are quite short and with little or no water, as the slope on that side is steep and rugged. On the eastern slope, however, the canyons are broad-

er and the majority of them well watered. Montezuma Canyon borders on the line, and the canyons from there are Ash, Clark, Miller, Carr, Ramsey, Brown, Tanner, Rock and Fort. Of these Ramsey is by far the best and most logical, as it contains a good stream, is easy of access and is quite gradual in its ascent. Miller Canyon has also been collected extensively. Tanner Canyon, or Garden Canyon as it is now known, the Post garden being situated there, has the largest flow of water, which has been reported as containing fish. On the western slope the most prominent canyons are Cave, Bear, Copper Glance, and Old Mill, but in none of these would I consider it advisable to camp permanently. Cave Canyon, as the name indicates, contains a number of caves, in one of which I believe water has been found, and some interesting blind forms may possibly occur there. In Montezuma Canyon the collector is quite liable to encounter some new introduced cave subspecies, in the nature of Mexican mescal smugglers, who rendezvous in that locality. Ramsey Canyon can easily be reached from Hereford, the headquarters of the Green Cattle Company, the distance being about fourteen miles. A semi-weekly stage is run between these points. About two miles up the canyon there is a beautiful flower garden, the property of Mr. William Berner, and it affords excellent collecting. A small store is also kept in Ramsey Canyon, managed by the genial and able proprietor of the Hotel de Jack.

The Huachuca Mountains are still a fairly well wooded range, notwithstanding the onslaughts of the lumber hogs who thrived here before this region was declared a forest reserve. The higher parts are covered by various conifers, including six species of pines, *Pinus arizonica, P. ponderosa, P. strobiformis, P. cembroides, P. maryiana,* and *P. chihuchuana.* Along the streams grow various maples, alders, ash, walnuts, madrones, and the splendid Arizona sycamore (*Platanus wrightii* Watson.) Eight species of oak are found here, these being *Q. hypoleuca, Q. chrysolepis, Q. emoryi, Q. reticulata, Q. arizona, Q. gambelii, Q. oblongifolia* and *Q. undulata.* The latter is a scrub oak and occurs in extensive grooves, particu-

larly about the foothills. Among other trees that might be mentioned are the Douglass spruce (*Pseudotsuga mucronata* Sudworth); one seed juniper (*Juniperus monosperma* Sargent); alligator juniper *J. pachyphloea* Torrey); four willows, *S. nigra* Marshall, *S. occidentalis longipes* Beff, *S. lasiolepis* Bentham, *S. taxifolia* Humboldt, Bonpland and Kunth; the quaking asp (*Populus tremuloides* Michaux), and another *Populus*, the beautiful Fremont cottonwood (*P. fremontii* Watson); two species of Hackberry (*C. occidentalis* Linnaeus, and *C. reticulata* Torrey); the Mexican mulberry (*Morus celtidifolia* Humb., Bonpland and Kunth), and two mahoganies (*C. parvifolius betuloides* Sargent, and *C. p. paucidentatus* Watson); the Mexican cherry (*Prunus salicifolia* Humb., Bonpland and Kunth); Devil's claws (*Acacia greggi* Gray), and *A constricta* Bentham; New Mexican locust (*Robinia neomexicana* Gray), hoptree (*Ptelea trifoliata* Linnaeus), wild china tree (*Sapindus marginatus* Wildenow), Mexican elder (*Sambucus mexicana* Preal.) There are many mescals and a few yuccas about the foothills, and both of these, when in blossom, attract innumerable insects and are of the greatest value to the lepidopterist, dipterist and hymenopterist. Along the water courses the gnarled manzanita, *A. pungens* H. B. and K., grows in profusion. There are a few clusters of mesquite, *Prosopis glandulosa* Torrey, at the base of the mountains and on these there is excellent collecting, especially when in bloom.

For the lepidopterist, August is the earliest month in which to visit the mountains, collecting from then on being at its best. While a number of single-brooded species will be missed, yet the richness of the fall months more than make up the deficit. Arizona having two so-called rainy seasons—winter and summer—there is but little collecting save in the months immediately following these. The summer rains generally begin in early July, and sometimes continue considerably into September.

The water question in the Huachucas, while not a serious one, is worthy of some consideration. A canteen will prove to be a very useful article. Moreover a small calibre rifle or re-

volver should be part of the collector's paraphernalia, as the little hydrophobia skunk seems to be particularly partial to entomologists—and his visits are largely nocturnal. Tin boxes should be used in packing specimens, as they not only safeguard the contents from the ravages of ants, but also to a considerable degree are mouldproof. For night collecting, an acetylene lamp is quite indispensable. Sugaring I have found to be highly unproductive.

Notes on a few Nymphs of Agrioninae (Order Odonata) of the Hagen Collection.

By James G. Needham, Cornell University, Ithaca, N. Y.

(Plate XI.)

Supplemental to the descriptions and figures of nymphs of Calopteryginae that were published in Entomological News for March, 1911, I present herewith some descriptive notes and drawings of three nymphs of Agrioninae. The species are from India. The specimens are in the Museum of Comparative Zoology, where I studied them in 1905. Although long in Dr. Hagen's possession they were not described by him. They present some peculiarities of structure that will be of special interest and value when the primary subdivisions of the subfamilies of Zygoptera shall come to be accurately defined.

Legion Podagrion s. lat. gen. ? sp. ? (Plate XI, figs. 1-4).

A few poorly preserved specimens of this species bear the M. C. Z. number 334.

A well-grown nymph measures; in length, 28 mm.; gills, 7 mm. additional; abdomen, 21 mm.; hind femur, 5 mm. Width of head, 5 mm.; of abdomen, 3.5 mm.

A smooth and rather slender species with long abdomen and rather short legs. Head widest across the middle of the large, laterally prominent eyes, which cover two-thirds of its side margins. Hind angles low, broadly rounded, subspinulose; between them the hind margin is deeply notched. Ocelli large, close together. Antennae about as long as the head is wide, the length of the several segments from the base outward is as 1 : 1.3 : 2.1 : 1.7 : 1.3 : 1 : .6. Labium elongate slender, the hinge reaching porteriorly to the

metathorax; mentum widened to the bases of the rather short lateral lobes; median lobe somewhat prominent, completely divided by a nearly closed median cleft which descends below the level of the base of the lateral lobes and widens at the bottom to an oval enclosure. Lateral lobe with a long and strong movable hook, and two stout incurved hooks on the end, the outer hook being simple and half as large as the inner. No raptorial setae.

Legs short, longitudinally carinate, the carinae beset with minute prickles. Wings reaching the base of the fourth abdominal segment.

Abdomen cylindric, becoming compressed and slightly narrowed on segments 9 and 10, with a dorsal ridge on 10, slightly excavate at the apical margin. Segments 5-9 are laterally carinate, the carinæ spinulose serrate, ending in sharp lateral spines, the one on segment 5 rudimentary. Gills obovate, widest beyond the middle, and abruptly rounded on tip, each jointed on a distinct basal segment that is about as long as high, the middle gill about a tenth shorter than the other two. External genitalia of both sexes remarkably well developed.

The identity of this nymph is not disclosed by the imperfectly preserved venation. Ante and post-nodals are 2:16 and 2:14 in fore and hind wing respectively. The hind margin appears to be "petiolate" from the level of the cross vein opposite the inner end of the subquadrangle, although this is not very clear. The stigma is nearly four times as long as wide, slightly convex both before and behind, strongly braced at its inner end, and there are two cross veins in the space behind it, placed at the first and second thirds of its length. Vein M2 arises opposite the fourth cross vein beyond the nodus, is widely separated from vein M1 opposite the outer end of the stigma with four cell rows between (three of them below vein M1a) and strongly convergent with vein M1 to the wing margin. In the apical costal space beyond the stigma there are about ten long simple cross veins in the fore wing, and somewhat fewer, distinctly forking ones in the hind wing. The arculus is in line with the second antenodal cross vein, but inclines outward to meet the inner angle of the rather obliquely placed quadrangle. The latter is trapezoidal, its front margin much shorter than the others, being about half as long as the outer side and hardly more than a third as long as the hinder side. The branches of the cubital vein diverge strongly at their departure from the quadrangle, and then extend parallel.

These details should be sufficient for the determination of the genus at least, if one had before him representatives of the Indian fauna. I know no adult Agrionid with venation

of the sort described. The reference is made to the legion Podagrion of de Selys, because of the existence of two interpolated sectors (one long and one short) between veins M_3 and Rs, with a number of short oblique ones behind the tip of vein M_3.

Pseudagrion sp. ? (supposition), (Plate XI, figs. 5-8).

Nymphs are in the M. C. Z. collection bearing numbers 327 and 355, collected by Rev. M. A. Carleton, in the Himalayas, in 1871.

A well grown nymph measures 19 mm., gills 6 mm. additional; abdomen, 14 mm. Width of head, 3.2 mm.

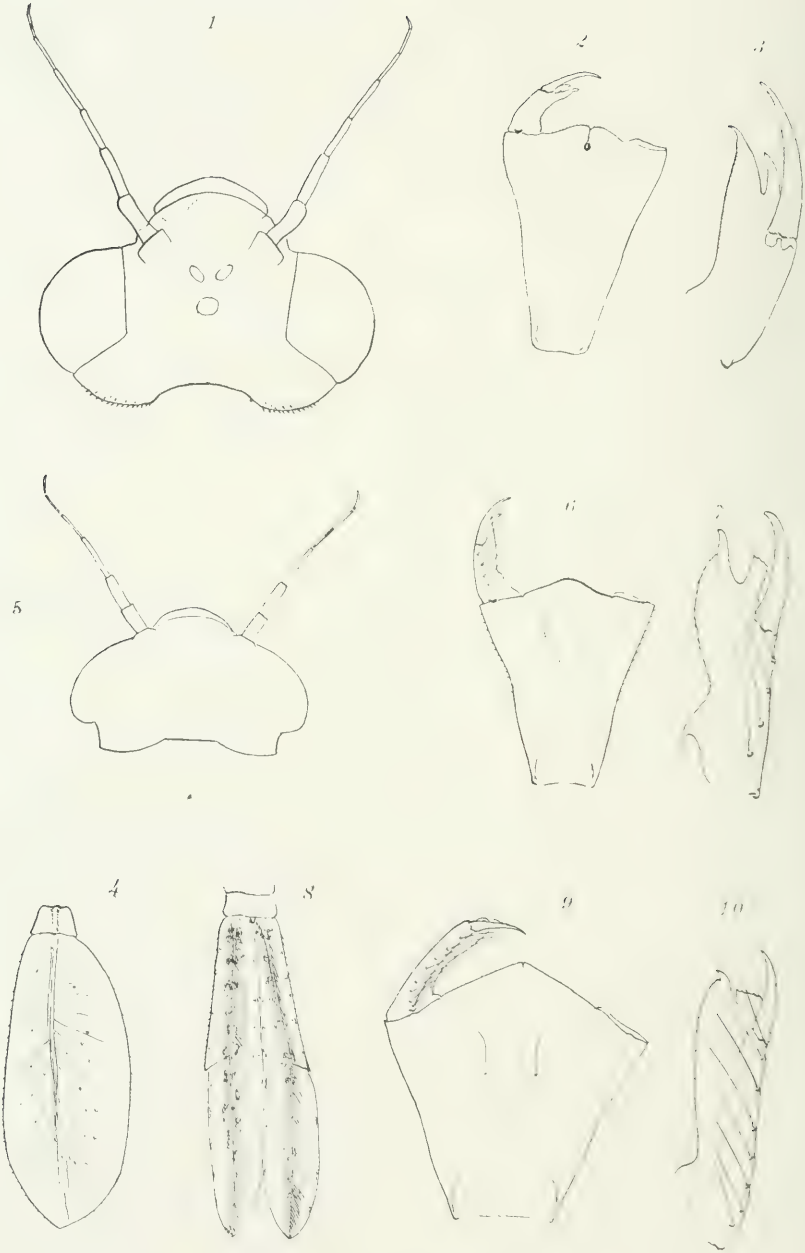
A rather slender nymph, readily recognized by the extreme angulation of the hind angles of the head, and by the conspicuous joint in the middle of the gills. The head save for the hind angles, is of the ordinary Agrionine form, with ocelli close together upon the middle of the dorsal side. The antennae are apparently but six jointed, the relative lengths of the joints being as 1: .9: 1.1: 1.2: .9: .7. Legs slender. The wing cases reach the middle of the fourth abdominal segment. Vein M2 arises opposite the fifth cross vein after the nodus in the fore wing, opposite the fourth cross vein in the hind wing. There are no interpolated sectors save M1a which arises in the hind wing opposite the base of the brace vein to the stigma. The hind side of the stigma is shorter than the cell behind it. The front side of the quadrangle is in the fore wing about equal in length to the inner end, but much longer in the hind wing. The gills are divergent basally, distinctly divided into two segments by an oblique suture at the middle of their length, and thereafter parallel to their rather obtuse tips. In a wide transparent marginal area there are small pigmentation figures of more or less dendritic form, and the denser more opaque median band is traversed by long and nearly parallel tracheal branches, which gradually diverge to the margins.

Aciagrion sp. ? (supposition), (Plate XI, figs. 9, 10).

Nymphs of this species in the Museum of Comparative Zoology bear the numbers 395 ("Swamp, E. Jumma, India. Old Holy Tank"), and 324 ("Ibania, East India. Old Holy Tank"). They are interesting as showing a minimum development of the median cleft of the labium.

A well grown specimen measures: in length, 12.5 mm., gills 3.5 mm. additional; abdomen, 7.5 mm.; hind femur, 3 mm. Width of head, 3 mm., of abdomen 2 mm.

A not very slender nymph with short gills. Head rather deeply



AGRIONINE NYMPHS—NEEDHAM.

and squarely notched behind between wide hind angles that are obtusely rounded externally and beset with minute prickles or tuberculations. Antennæ seven-jointed, the relative length of the segments being as 1 : 1.6 : 2 : 1.9 : 1.6 : 1.2 : .6.

The legs are short and rather stout with spinulous longitudinal carinae. The femora show indistinct subapical rings of paler coloration. The wing-cases reach the middle of the fourth abdominal segment. Abdomen rather short, cylindric, slightly tapering posteriorly, with a row of pale dots across the apical border of each segment. Gills oval, widest just beyond the middle, tapering to both ends, but more abruptly to the submucronate apex. They are without the middle transverse suture of the preceding species, but they retain the chitinized margins bearing minute serratures and spinules in something less than the basal half of the dorsal margin of the superior gill and of the ventral margin of the paired gills. The tracheal branches are all long. They issue separately near the base and gradually diverge as they pass outward along the axial thickening of the gill.

The genitalia are well marked in both sexes. The ovipositor of the female is large, its supporting valves bear on the ventral margin several spinules and have a thorn-like decurved apex. The ninth segment in the male is armed ventrally with two sharp pyramidal triangular spines.

I have ventured to publish these brief descriptions for the purpose of calling attention to the cleft condition of the labium in two true Agrioninae. Also, for the purpose of calling attention to the almost untouched problem of the segmentation of the caudal gills which the three forms herewith described present. The first of these has gills with a short basal segment, something as in Lestes. The second has a distinct joint in the middle of the gill. The third has lost the middle suture, but has retained a slight differentiation of the margin of the basal portion, as have some other well known agrionine nymphs.

Explanation of Plate XI.—Figures 1 to 4, unknown nymph of the legion Podagrion. 1—The head from above. 2—The labium from within. 3—The lateral lobe of the same. 4—A single caudal gill.

Figures 5 to 8—*Pseudagrion* (supposition). 5—The head from above. 6—The labium from within. 7—The lateral lobe of the same. 8—The end of the abdomen of the male nymph, showing gills.

Figures 9 and 10—*Aciagrion* (supposition). 9—The labium from within. 10—The lateral lobe of the labium of the same.

A New Root Gall Midge from Smilacina (Dipt.).

By Sherman C. Bishop, Clyde, New York.

Dasyneura smilacinae n. sp.

The insect described below was reared by me at Ithaca, New York, January 15, 1910, from root galls on false Solomon's Seal, *Smilacina racemosa.*

Female.—Length 1.5 to 2.5 mm. Face, light yellow, slightly darker at apex; labrum, yellow, somewhat darker at tip and fringed on its free margin with fine hairs. Antennæ, dark brown; 17 sessile segments, extending to second abdominal segment; basal segment, goblet shaped; second, globular and inserted in hollow of first; first two and basal half of third segments lighter in color than remaining segments; the fifth cylindric, with a length about twice its diameter; subbasal whorl sparse, subapical whorl long, scattering; terminal segment narrowly conical, with a length three times its diameter and tapering rather abruptly from the distal third. Palpi quadriarticulate, first segment subquadrate, the second rectangular with a length three times its diameter, the third one-half longer, more slender; the fourth longer and more slender than the third.

Pro- and meso-thorax marked dorsally with three dark brown longitudinally extending spots, placed side by side, with center one slightly cephalad. Center spot rounded in front, tapering to a point behind. Outer spots roughly crescent shaped, with convex sides placed towards the center.

Abdomen light yellow or white, covered dorsally with brown scales, forming broad but somewhat indistinct bands. Posterior margins of segments fringed with long yellow hairs. Ovipositor, fully extended, about three-fourths as long as body; terminal lobes with a length four to five times their width, slightly tapering, thickly setose; minor lobes short.

Wings hyaline covered sparsely with long light brown hairs; subcosta uniting with costa at the basal third; the third vein slightly curved and joining the margin at the distal ninth; the fifth at the distal fourth, its branch just before the basal half; costa thickly clothed with brown hairs and a few elongated scales.

Halteres with stalk transparent and knob light brown or with an opaque spot.

Legs, light straw, sparsely covered with short light brown hairs. Tarsi somewhat darker; first two segments as long as last three; claws slender, strongly curved, unidentate, the pulvilli a little shorter than the claws.

Male.—Length, 1 mm. Antennae probably with 17 segments, the fifth with a stem about one-third the length of the cylindric basal enlargement, which latter has a length twice its diameter. Stalks of segments lighter in color than basal enlargements. Other characters of male indistinct, the one specimen being in very bad condition.

The Probable Occurrence of the Mymarid Genus Dicopus Enock in North America (Hymen.).

By A. A. Girault, Brisbane, Queensland, Australia.

Several weeks ago, Dr. C. Gordon Hewitt, Dominion Entomologist, Ottawa, Canada, turned over to me for identification a number of slide-mounted parasitic Hymenoptera obtained from spruce budworm rearing material, among which I found a single mymarid so minute as almost to be lost in the medium in which it was mounted. Casually, I placed it at once as an *Alaptus* but more leisurely examination showed that it differed from that genus in having two more segments in the antennæ. This being the case, the species could not be placed into any of the genera of the Gonatocerinæ, since there are none in that sub-family which bear twelve-jointed antennæ in the males. There is an English genus, however, recently described by Enock for *Dicopus minutissima* Enock, which closely resembles *Alaptus* Haliday in form, but which differs in bearing two more antennal segments; the male of this genus is unknown. Now, this Canadian species precluded from being an *Alaptus* must belong to *Dicopus,* at least until we know to the contrary. It is one of the smallest North American Mymaridæ and because of this and also because of its characteristic appearance. I believe it incumbent on me to describe it rather than risk its being lost. It can be easily recognized; thus, it is an *Alaptus* male with two more segments in the antennæ, the antennal funicle peculiar because of the abrupt narrowing of the second joint and the fore wings more or less characteristic by reason of their comparatively abundant discal ciliation. I describe the species in detail herewith.

Family Mymaridae, Subfamily Gonatocerinae, Tribe Gonatocerini, Genus *Dicopus* Enock.

1. Dicopus halitus new species.

Normal position.

Male.—Length, 0.23 mm. Very minute, barely visible to the naked eye as a fleck of dust. Abdomen sessile; tarsi 5-jointed.

General color sooty black, all of the legs and the whole of the antennæ pallid yellowish; wings very slightly clouded throughout, the

margins of the fore wings distad rimmed with yellowish. Eyes dark reddish.

With all of the characters of *Alaptus* Haliday, male, but the antennæ 12-jointed; resembling an *Alaptus.* However, the fore wing is slenderer at that portion just distad of the venation and the caudal wings are as narrow as it is possible for them to be and still have a blade, narrower by a half than those of *Alaptus.* Fore wings shaped as in *Alaptus,* their marginal cilia long and slender, the longest at and around the apex where they are four or more times longer than the wing is wide just before apex (its widest portion), the cilia symmetrical along each margin, those around the dilated apical portion of the blade colorless a short distance out from their insertions, making the usual colorless path which follows the outlines of the margins of the apex. Blade of the fore wing characterized by bearing in the dilated portion (distal half or less) a single midlongitudinal paired line of short discal cilia and a single line of the same along each margin, all three lines about equal in length. Venation as in *Alaptus* and the wing has the usual dilated portion proximad, along the caudal margin. Caudal wings very narrow and nearly straight but slightly widening distad, their marginal cilia long, the longest (at apex) about half the length of the longest of the fore wing, present farther proximad along the caudal margin of the blade; the blade of the posterior wing bearing along the distal half or less, at each margin, a single line of discal cilia, distinct but short; no discal cilia in the midlongitudinal line of the posterior wing. All tarsal joints short, the proximal one longest, the tibial spurs single, minute, straight. Legs simple, slender, but of the usual length.

Antennæ 12-jointed, filiform as in male *Alaptus;* characterized by having the second funicle joint abruptly narrower and slightly shorter than the first, somewhat as the case with *Alaptus iceryae* Riley but the joint is slenderer and longer than wide; scape and pedicel short, the latter widest of all segments; funicle 1 shorter and much narrower than the pedicel; 2 abruptly narrower and slightly shorter than 1, a half shorter than 3 which is also distinctly broader; 4 and 5 subequal, each a fourth shorter than 3, each longer than 1; 6, 7, 8 and 9 subequal, each slightly longer than the one preceding. 6 subequal to 3, 9 longest of the flagellum. Joint 10 or the club conical, subequal to 4. All flagellar segments distinctly longer than wide. Pubescence sparse and minute. (From 1 specimen, 2-3 inch objective, 1-inch optic, Bausch and Lomb.)

Female,—Unknown.

Described from a single male specimen on a slide in balsam received for identification from Dr. C. Gordon Hewitt, Dominion Entomologist, Ottawa, Canada, the slide being labelled

"Ex. Spruce budworm material, Maniwaki, P. Q., 27 VI. '11 Division of Entomology." The supposed host is *Tortrix fumiferana* Clemens, but of course the record is doubtful; I would suggest, instead, a psocid egg or a coccid pupa present in the host material.

Habitat.—Canada—Quebec (Maniwaki), G. E. Sanders.

Host.—Unknown.

Type.—Cat. No. 14,184, United States National Museum. Washington, D. C., one male in balsam.

Notes on Two Tipulidae (Dipt.).

By Charles P. Alexander, Ithaca, N. Y.

The following species were taken in Fulton County, New York, during 1909 and 1910. The first species is a novelty and cannot be referred to any of the known genera of crane flies. After a careful examination of the literature, I have decided to erect the following genus:

SACANDAGA gen. nov.

Subcosta, long; vein R^2 very short, oblique; no radial cross-vein; M1+2 fused to margin. Antennae of 16 segments; basal segment rather globular; second globular, cyathiform;

Fig. 1.—*Sacandaga flava* dorsal aspect of head; Cotype No. 2.

first segment of the flagellum globular; second to ninth gradually cylindrical; tenth to fourteenth, elongate-cylindrical; all

of the segments of the flagellum armed with from two to four stiff hairs. Palpus of four segments; fourth segment irregularly cylindrical, longer than the third; second about as long as the fourth; first longest; all armed with many stiff hairs. Eyes large, rather approximated behind. Legs rather short, fore legs about 13.5 mm. long; middle, 10.5 mm. long; hind, 13.5 mm. long. Last four tarsal segments very slender at their point of attachment with the segment preceding. The last tarsal joint is small, irregular in shape, rather smooth on the outer face; inner face, concave, with slight convexities at each end, the proximal with from six to eight hairs, the distal one with a single conspicuous bristle on each side, the whole inner face being rather finely clothed with hair; at the base of the segment on the outer face, are about four stiff hairs. Penultimate segment generally similar to the fifth in shape and

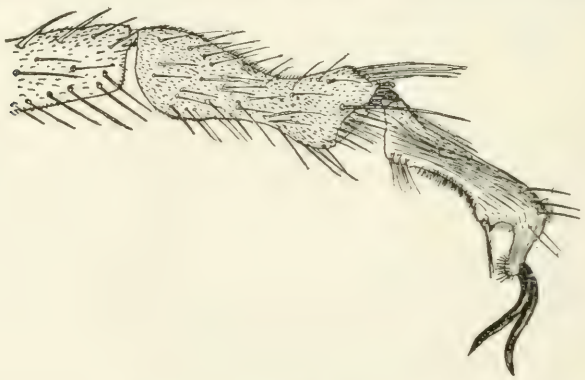


Fig. 2.—*Sacandaga flava*—middle leg, showing last two tarsal segments.

size, but more thickly covered with stout hairs. Claws long, slender, smooth, those of the posterior legs nearly two-thirds as long as the fifth tarsal segment.

This genus belongs to the tribe *Polymedini* (*Eriopterini* of authors.) It is most similar in venation to *Empeda* and *Goniomyia,* which it approaches in the shape of cell R^2. It is easily distinguished by the much greater length of subcosta, lack of radial cross-vein, the deflection of Cu^1 fusing with M^3

under cell first M^2 (discal cell of Osten Sacken), not proximal to it, and the consequent insignificant fusion of Cu^1 with M^3. The resemblance to these two genera is probably merely accidental, as, in general appearance, the flies are very different.

The type, and only known species, is:

Sacandaga flava sp. nov.

Type—Alcoholic ♀, in C. U. collection; Sport Is., Sacandaga River, June 12, '09. Cotypes; (1) Sport Island, July 5, '09 (collection Bost. Soc. Nat. Hist.). (2), ♂; June 27, '10; same locality. (3), ♂; June 12, '09; same locality. (4), Gloversville, N. Y., July 3, '09.

Length 5 mm.; wing, from 6 to 7 mm. See table of leg measurements at the end of description.

Antennæ blackish-brown; first segment, head and palpi, reddish-brown; eyes black.

Thoracic dorsum with a broad median stripe of reddish-brown on a more yellowish ground, beginning on the anterior margin of the præscutum, terminating within a short distance of the posterior margin. To the side of this, and more or less distinctly separated from it, is a broad stripe, beginning near the caudal end of the scutum and extending forwards on the side of the præscutum to near the middle of the latter. A narrow brown stripe extends from the anterior margin of the præscutum to the cephalic margin of the neck. Sides of the neck and thorax, honey-yellow, becoming infuscated toward the venter. Legs dusky yellow; halteres light yellow throughout. Abdomen dirty yellowish. Wings hyaline, opalescent; stigma somewhat distinct.

Details of venation of the species: Subcosta long, *Sc*1 at least five times the length of *Sc*2. Radius quite long, parallel to subcosta till the latter ends, and then parallel to costa for a short distance, at its tip sharply turned upward. The radial sector arises near the middle of *R*. *R*2 is very short, oblique, shorter than the cross-vein *r-m* and only one quarter the length of *R*3. *R*3 a trifle longer than *R*2+3. Basal deflection of *R*4+5 as long as *R*2; beyond the *r-m* cross-vein, the vein runs nearly parallel between *R*2+3 and *M*1+2.

Media: basal deflection of *M*1+2 about one-half the length of *R*2; thence, to the *m* cross-vein, twice the length of *R*2. Basal deflection of *M*3 equals R2. Fused portion of *M*3+ *Cu*1 equal to one and one-half *R*2. Second deflection of *M*3, two-thirds the length of *R*2.

Cubitus: Basal deflection of *Cu*1 (great cross-vein of Osten Sacken) two-thirds the length of *Cu*2 or one and one-half *R*2.

1st Anal, nearly parallel to cubitus, more divergent toward the wing-margin. 2nd Anal, gently bisinuate and diverging posteriorly, leaving cell 1st *A* very large.

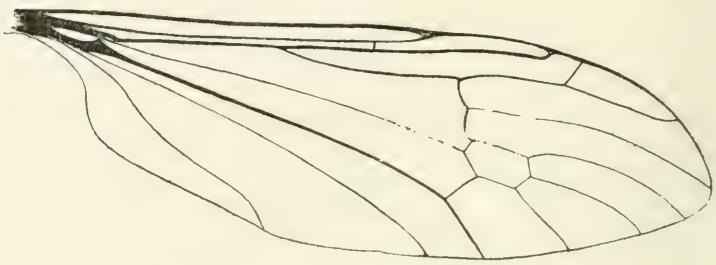


Fig. 3.—*Sacandaga flava*—wing; Cotype No. 3.

Cell *R*2 is triangular, small; cell 1st *M*2 (discal cell of Osten Sacken) hexagonal, small. The proportions of the veins holds good in the specimens examined but may vary somewhat in a large series.

Leg measurements of cotype No. 2 (♂):

	FORE	MIDDLE	HIND
Femora	3.6 mm.	3.6 mm.	4.9 mm.
Tibia	4.8 "	3.7 "	4.5 "
Tarsus.....1	3.3 "	2.0 "	2.35 "
" 2	1.0 "	.75 "	.90 "
" 3	.3 "	.28 "	.35 "
" 4	.14 "	.14 "	.14 "
" 5	.13 "	.13 "	.13 "
Total.....	13.27 mm.	10.60 mm.	13.27 mm.

More complete notes on the habits and occurrence will be given in "Fulton Co. (New York) Tipulidæ; Pt. II."

Adelphomyia senilis.

A second species which deserves mention is a little crane-fly of the tribe *Limnophilini*. It belongs to the genus *Adelphomyia*, hitherto known only from the Old World, and is undoubtedly the same as the common European, A. *senilis* Haliday. The specimens at hand, over a hundred in number, agree

so closely with Loew's detailed description (as *Cladura fuscula*, Beschr. Europ. Dipt. III, p. 65), that it must be referred to *senilis* until a comparison with European specimens proves it otherwise.

The fly is very common in Fulton County, New York, in late summer and early autumn, and with the exception of the all-predominant *Cladura flavoferruginea* O. S., is the most common *Amphinomine* (*Limnobine*) at this season.

The venation, as shown by figure 4, is, in general, similar to a *Phylidorea* (*Limnophila*), but Sc^1 is longer than in any of the species of this genus in Eastern America, at least. All of the distal cells possess long prominent hairs on the membrane. These hairs occur all over cells 2nd R^1, R^2, R^3, R^5, M^1, M^2,

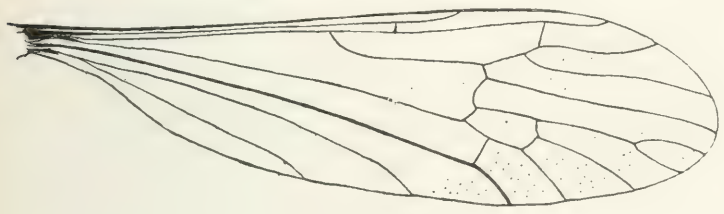


Fig. 4.—*Adelphomyia senilis*—wing.

M^3, Cu^1, a few in cell 2nd M^2 (discal cell of authors), and a few on the extreme distal edge of cells *Cu*, *R* and Sc^1. There is never any of this hairiness on the proximal half of the wing as in *Ulomorpha* and the character of the hair is different in the two genera.

Adelphomyia senilis might be mistaken for a small *Phylidorea*, but it is smaller than any of the described Eastern species. From *Ulomorpha*, it readily separates by its smaller size, presence of cell M^1 and characters mentioned above.

In Fulton County, New York, the species is well distributed, as follows:

(1) Woodworth's Lake; alt. 1665 ft.; Aug. 21, 22, '09; Aug. 22, 1910.

(2) Sport Is.; Sacandaga R.; alt. 750 ft.; one only, Aug. 24, 1910.

(3) Johnstown; alt. 600 ft.; Aug. 31-Sept. 22, 1910.

(4) Gloversville; alt. 1000 ft.; Sept. 23, 1910.

Mr. M. D. Leonard, a most careful student of the family, took two specimens at Ridgewood, Bergen Co., N. J. (Brook, Ridgewood Heights, Sept. 16, 1910), thereby adding an interesting species to the New Jersey State list.

Besides receiving help from a number of students at Cornell, I wish, especially, to thank Dr. J. G. Needham for his very kind assistance throughout the course of this study.

Two Rare Species of Coleoptera.

By Henry Skinner, M.D., Sc.D., Philadelphia, Pa.

I. Dorcus Brevis Say.

It seems of interest at this time to put on record in more concrete form a short history of this interesting beetle. It was described under the name of *Lucanus brevis* by Thomas Say in the Journal of the Academy of Natural Sciences of Philadelphia, Volume V, pt. 1, p. 202, 1825. No locality was mentioned other than the United States. The next mention of the species is probably by J. H. B. Bland, Proceedings of the Entomological Society of Philadelphia, 1, 263, 1862. He gives a brief account of the records of the species and a figure. Three specimens are mentioned as having been found within a few miles of each other in the months of July and August. The specimen figured, a male, was taken alive near Weymouth, New Jersey. This specimen is in the collection of the American Entomological Society. "Of the other two, one a female, is in the collection of Dr. Leconte [now Museum of Comparative Zoology, Cambridge, Massachusetts], the other, a male, is in Mr. Bland's collection, both being more or less imperfect." The specimen mentioned as being in Mr. Bland's collection passed into the hands of the late Charles Wilt and is now in the collection of the American Entomological Society. Mr. Bland stated that the species had been lost from our fauna since 1831. All the specimens were collected by G.

W. Quinn, two of them being found dead, lying in the open road. These two were found in the vicinity of Da Costa, Atlantic County, New Jersey.

It is not my purpose to say anything about the generic position or the specific value of this beetle; this has been done, however, by Dr. George H. Horn, in ENTOMOLOGICAL NEWS, 3, 73, 1892, under the title *Dorcus parellus* Say. I made the photograph for Dr. Horn and superintended the printing of the illustration accompanying his article. It is somewhat doubtful whether Dr. Horn's views will be acceded to by the Coleopterists of to-day. The annual report of the New Jersey State Museum, including a Report of the Insects of New Jersey for 1909, page 311, credits the species to Da Costa (Say) and Weymouth (Daecke). The locality whence Say received the species appears to be unknown and Daecke has never taken the species. Da Costa and vicinity have been the stamping ground of the Philadelphia entomologists for over half a century and none of them ever found a specimen of *Dorcus brevis,* with the exception of those above mentioned taken by G. W. Quinn, who lived at Da Costa. The locality where *brevis* was taken is a very wild one and is a good second in midsummer to the desert of Sahara. It has changed considerably since the early days. This part of Jersey is covered with scrub pine and oak, but the axe of the woodsman and forest fires have greatly changed things. Many of the old sand roads through the woods have been surfaced with gravel. Weymouth is about six miles southwest of Da Costa. I have collected at Da Costa on hot days and found it about as trying a place as I have ever been in. The lack of water and the heat reflected from the sand make a combination that only the enthusiastic entomological collector can stand.

The way to get *brevis* would be to spend a couple of months at Da Costa (July and August) and make a regular campaign for the insect. My interest in the species was brought about by a conversation with Mr. Henry W. Wenzel, who has known the locality for years and often collected there. He is also familiar with the early history of the species. The Bland family

lived in Da Costa at one time and G. W. Quinn was a brother-in-law of Bland and also lived there. If there are additional specimens (other than the three mentioned) it would be of interest to have them placed on record.

II. The Rediscovery of Plusiotis woodii.

This beautiful species was described by Dr. G. H. Horn in the Transactions of the American Entomological Society, 12, 124, 1885, and he speaks of it as follows:

"Two specimens from the Rio Grande, Texas, collected by my friend, Dr. H. C. Wood, to whom I have great pleasure in dedicating the species. I have seen another specimen in the Museum of the Jardin des Plantes at Paris."

When I described *Plusiotis beyeri* in Entomological News 16, 289, 1905, I endeavored to find out the exact place where *woodii* was taken and wrote to Dr. Wood in regard to the matter. He said he believed the two specimens (male and female types) were taken either at El Paso or in the valley of the Tornillo Creek which runs into the "great bend" of the Rio Grande, Texas. Mr. H. W. Wenzel predicted that the home of *woodii* would be found to be somewhere in the mountains of southern Texas, and such proves to be the case. A number of specimens in beautiful condition have been obtained by the Wenzel-Green expedition to the Great Bend of the Rio Grande. These specimens were taken July 10th, 1911, on Davis Mountain, 5200 ft. altitude in Jeff Davis County, Texas. They were beaten from walnut trees. The specimens agree perfectly with the types in the Horn collection and show no variability and are very distinct from the other species in the genus. The expedition members are Mr. H. A. Wenzel, of Philadelphia, and Mr. J. W. Green, of Easton, Pennsylvania.

It is extremely interesting to have *Plusiotis woodii* refound after a period of twenty-six years. The collectors deserve great credit for their enterprise and they will doubtless find many other species of interest in this unexplored region. In addition to *woodii* they found *P. gloriosa,* which greatly extends the range of the latter species.

Four specimens of *woodii* were also taken in Moss Canyon in the Chisos Mountains. *P. gloriosa* was also found in these mountains.

Plusiotis beyeri has been found by Prof. H. A. Pilsbury at Agua Caliente, Santa Rita Mountains, Arizona (7000 ft.), and by J. R. Haskin, near Cananea, Sonora, Mexico (5000 ft.)

Description of a New Dryophanta (Hymen.).

By William Beutenmuller,

American Museum of Natural History, New York City.

Dryophanta pulchella sp. nov.

Female.—Head rufous or pitchy brown, finely punctate, median ridge rather broad. Antennæ 14-jointed, dark brown, first and second joints yellowish brown. Thorax dark reddish brown or black, smooth and shining. Parapsidal grooves sharply defined with the margins rounded; they are widely separated anteriorly and very close together at the scutellum. Median groove broad anteriorly and gradually becoming narrower and very fine at the scutellum. Anterior parallel lines and lateral grooves wanting. Pleurae punctate with a large, smooth, glossy area. Scutellum dark rufous or black, rugose, with two large depressions or foveæ at the base, separated by a fine carina. Abdomen rufous, smooth and shining. Legs rufous. Wing long, hyaline with a number of large brown clouds and patches of different sizes. Veins heavy, brown and infuscated. Areolot small, Cubitus continuous to the first cross-vein. Radial area open, radial vein curved and running outwardly for a short distance below the costal margin. Length, 3—3.50 mm.

Habitat: Catalina Island, California, (C. F. Baker); Hood River, Oregon. June 20th.

In the specimen from Oregon the thorax is black, otherwise it does not differ from the form with the red thorax. It is a beautiful species and may be readily known by the large spots and cloud on the fore wings. The male and gall are unknown.

Lieut. Col. Wirt Robinson, Coast Artillery, has been nominated by the President of the U. S. to be Professor of Chemistry at West Point, to take effect on October 3rd. Colonel Robinson is interested in Ornithology and Entomology. He was the discoverer of the home of *Papilo homerus* in the Cuna Cuna Pass in the Blue Mountains of Jamaica. His interesting article on his experiences in search of this large and rare species was published in the News.

A New Polynema from Mexico (Hymen.).

By A. A. Girault, Brisbane, Queensland, Australia.

The following species was found in a collection of Signiphorinæ loaned to me for study by Dr. L. O. Howard. It was at first identified as *Polynema howardii* (Ashmead) but a comparison with the type of the latter shows such differences that the two cannot very well be the same.

Polynema aspidioti sp. n.

Normal position. *Male.*—Length, 0.65 mm. Moderate in size for the genus.

Similar to *howardii* but differing in the following details:

The fore wings differ somewhat in shape but more specifically in having shorter marginal cilia at the wing apex and along the cephalic wing margin; in *howardii* the apical margin cilia and those along the cephalic margin are twice longer than with this species, nearly as long as half the greatest wing width; in *aspidioti*, however, they are only about a fourth the greatest wing width; the fore wing is shaped still more like that characteristic of *Stethynium* Enock. The species differ in coloration: in *howardii* all of the legs are black or nearly so, but in *aspidioti* the first two pairs of legs are pallid yellowish, only slightly dusky in places, the distal tarsal joints blackish, while, excepting the trochanters, all of the posterior legs are blackish; in *howardii* only the proximal three tarsal joints of all of the legs are yellowish; in *aspidioti* all of the tarsal joints of the caudal legs are black. Otherwise the two species are identical. The line of foveæ across the scutellum is present here; the parapsidal furrows are complete; all of the antenna concolorous with the body; petiole of abdomen yellowish; joints of flagellum short, slightly more than twice longer than wide.

From one specimen, 2-3 inch objective, 1 inch optic, Bausch and Lomb.

Female.—Unknown.

A species characterized by the shape of the fore wing and the arrangement of its marginal cilia.

Described from a single male specimen mounted on a slide with a species of *Signiphora* and labelled "1734. Aspidiotus carinatus. On Lime, Cuautla, Morelos, Mex., July 2, '97. Koebele." The host may be the *Aspidiotus* or else some Jassid egg.

Habitat: North America—Mexico (Morelos).

Type: Type No. 14,027, United States National Museum, Washington, D. C., one female in balsam.

Early Stages of Lycaena lygdamus Doubleday (Lepid.).

By H. M. Bower, Chicago.

(Plate XII.)

On May 14th while collecting at Palos Park, a small town about twenty miles southwest of Chicago, it was my good fortune to observe a female *lygdamus* ovipositing on *Lathyrus ochroleucus* Hook. and *L. caroliniana* Walt. which grew abundantly on a particular knoll in that vicinity. Upon further search many eggs were found and a few larvae.

The eggs in most cases, were laid on the outside of the tender leaf buds, though one was occasionally found on the under side of the older leaves. Upon hatching the young larvae ate small holes in the tender leaves and leaf buds. In the former case they would sometimes bore through the leaf and remain within the cylinder of the curled leaf. The buds were simply bored into until the third or fourth segment was out of sight when the hole was abandoned and another started. These tender leaves and the leaf buds were preferred throughout the life of the larvae.

Having occasion to visit this place later for food, I found a number of the more mature larvae. These were in almost every case attended by several ants which made the search rather easy as the ants invariably led to the discovery of a larva.

Several cases of cannibalism were observed in raising the larvae. Though supplied with abundant food some larvae partially consumed others which were moulting.

Before entering into the detailed description I wish to express my appreciation of the kindness of Mr. W. J. Gerhard, of the Field Museum who, among other things, took me to the haunts of *lygdamus*, which appears to be quite local.

Egg.—Length .70 mm.; height, .30 mm. Turban-shaped with micropyle slightly depressed. Color, when fresh, pale green, turning dull white before hatching. There is a raised white network forming polygonal cells. At the angle of each cell there is a rounded protuberance. The latter are largest at the edge of the egg and grow smaller at the base and around the micropyle. The cells formed

by the network are of various shapes, triangles predominate though crude squares and diamonds are present especially around the micropyle. Incubation period—3½ to 4 days. The larvae emerged by eating the shell at the top but in no case more than sufficient to get out.

Young larva.—Length, 1 mm.; slug-shaped. Color, light brown. Head, black. Feet, dark brown. There is a row of small tubercles on each side of the dorsal line, one on each segment, which bears a long hair, brown at the base but growing lighter at the tip, and pointing slightly backward on segments 2 to 11 inclusive, forward on the first segment. A little below and posterior to this row, each of segments 1 to 9 bears another hair which, with the exception of those on segments 1 and 2, bends abruptly backward and is shorter than the first described hair. On segments 1 and 2 they are of about equal length and point forward, especially on the first segment. The lateral line, marked by minute hairs at the forward edge of each segment is present on segments 2 to 10 inclusive.

The substigmatal line is light brown, raised and has three dark tubercles on each segment, the middle one being lower down in the line than that on either side. Each bears one hair, the middle one being the longest.

The cervical shield is dotted with black. Prolegs light brown, each bearing one small hair. The last segment has a number of small hairs around the edge. Spiracles, dark brown.

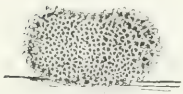
Each segment is slightly depressed vertically in the center and has several minute dots; one slightly below, and one on, the lateral line, and two others, one above the other toward the dorsum.

As the larva grows older, the color becomes light green, dorsal line dark green, with a light line on either side. Substigmatal line, light green. Head toward the end of this stage is hidden by the first segment which is carried horizontally.

Time between hatching and the first moult—4 days.

After first moult.—Length 3 mm. Feet and head black. Body pale green. The first segment is carried horizontally and is covered with small colorless hairs pointing forward. Segments 2 to 9 and segment 11 bear each one long hair pointing backward, and set in a small light green tubercle on each side of the dorsal line. There are also numerous smaller hairs scattered over the dorsum. In the middle of the 10th segment there is a gland opening at right angles to the dorsal line. It is the secretion of this gland that is attractive to the ants. The last segment is edged with short hairs.

The raised substigmatal line is yellow-green and is fringed with small colorless hairs, the three of the preceding stage being prominent. Sutures, dark green.



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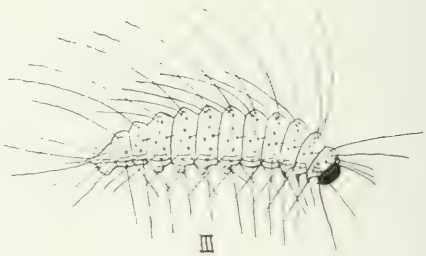

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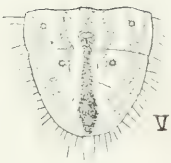

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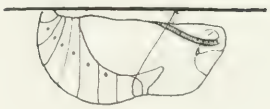

VIII

IX

LYCAENA LYGDAMUS—BOWER.

The cervical shield, in the shape of a curved triangle with the base forward, is light green spotted with black.

Spiracles dark brown.

The dorsal line is dark green edged on each side with yellow green, the edging being most prominent in the middle of each segment. Starting from the light edging of the dorsal line a yellow line runs obliquely from the front of each segment and is continued on the succeeding segment as a broken sublateral line. On the first two segments this line is fainter, appearing as a sublateral line only. In some specimens these obliques were not evident until later in this stage.

The middle of the first ten segments is slightly depressed. The body is covered with small hairs. Venter green.

Some larvæ are green overshot with brown. Dorsal line deep claret. Style of markings the same.

Time in this stage—5 days.

After second moult.—Length, 4 mm. Color, yellow green. Legs and head black. Dorsal line, dark green, widest on the second segment and gradually growing narrower, edged on each side with yellow green. Substigmatal line raised, yellow, and fringed with hairs as before. Cervical shield, pale brown edged with dark green and spotted with black. First segment covered with short, white hairs. Segment 2 bears two long hairs on each side of the dorsal line. Segments 3 to 9 inclusive bear each one long hair on each side of the dorsal line, set in a colorless tubercle. The 11th segment bears one long hair on the dorsal line.

The oblique lines are definite yellowish stripes starting with the light edging of the dorsal line at the anterior part of one segment, cross the segment and appear on the succeeding segment. They are broadly edged below with dark green. These obliques are faint on segment 3 and appear on the second segment as a sublateral line only, edged above and below with dark green. Segments 10 and 11 are marked by a continuation of the obliques of segment 9.

The tenth segment has the gland as in the preceding stage and on the 11th segment below and behind both spiracles are eversible organs. When retracted they leave small, oval, light colored patches; everted they are white columns crowned with movable straight projections.

Duration of this stage—4 days.

After third moult.—Length, about 8 mm. Color, clear green Markings as in the preceding stage but much more pronounced, especially the dorsal oblique with its wide dark green edging below. Substigmatal line the most conspicuous mark, cream colored, edged above and below in the middle of each segment with dark green.

Cervical shield pale brown with black spots, edged on the sides with a continuation of the dark upper edging of the sublateral line. Principal hairs located as in the previous stage. Gland and eversible organs as before.

Duration of this stage—4 days.

After fourth moult.—Length of mature larva, 14 mm. Greatest width (9th and 10th segments) 4 mm. Greatest height (3rd to 5th segments) 3.50 mm. Slug-shaped. Color, light green. Head and feet black. Body granulated with white points. Cervical shield light brown spotted with minute short black spines terminating in a star-shaped process. Dorsal line dark green, interrupted by the cervical shield but appearing on the first segment, which is carried horizontally.

The dorsal line is edged on each side with light yellow green. There is a short hair on segments 2 to 9 inclusive on each side of the dorsal line toward the rear of each segment. Segment 10 has one hair on the dorsal line behind the gland. Segment 2 also has one on each side of the dorsal line on the anterior part of the segment. Segment 1 has many hairs indiscriminately placed.

The oblique markings are as in the previous stage and very prominent. Substigmatal line as before, edged with hairs of even length as is also the case in the preceding stage.

Subventral line—a trace, light yellow green bearing short hairs. Spiracles round, clear, surrounded with minute erect brown hairs. Venter, clear green. Prolegs green.

Segment 10 bears the oval sac as before. The eversible organs present on the 11th segment.

As the time for pupation draws near the larvae turn blue green.

The above is a description of the average larva. In some cases the dorsal line is dark brown, in others deep wine-colored. In one instance the color of the dorsal line was suffused over the top of the second and third segments giving them a rose color. The type of the markings is, however, constant.

Time in this stage—5 to 6 days.

The larvae in almost every instance pupated in the bottom of the receptacle suspending themselves under leaves by a short girdle passing between segments 4 and 5.

Average time of suspension—2 days.

Time from laying of egg to pupa—26 days.

Pupa.—Length, 9 mm.; width, 4 mm. Of the usual Lycaenid shape. Suspended by a short girdle. The color varies from black with no markings to brown with dark dorsal line and light brown patches on the dorsum. In the light forms the wing-covers are greenish brown with the veins showing in green. The whole surface is heavily

reticulated, giving it a rough appearance under the lens. The spiracles are dull red. Minute setae present on the hind abdominal segments in the vicinity of the spiracles.

EXPLANATION OF PLATE XII.

Fig. I. Egg.
Fig. II. Showing pattern of network surrounding the egg.
Fig. III. Young larva just emerged.
Fig. IV. Mature larva.
Fig. V. Last three segments showing position of gland and eversible organs.
Fig. VI. Eversible organ distended.
Fig. VII. Dorsal view of pupa.
Fig. VIII. Lateral view of pupa.
Fig. IX. Ventral view of pupa.

Critical Notes on Some Species of Mymaridae (Hymen.).

By A. A. Girault, Brisbane, Queensland, Australia.

FAMILY MYMARIDAE.

SUBFAMILY GONATOCERINAE.

Tribe Gonatocerini.

Genus *Litus* Haliday.

1. Litus cynipseus Haliday.

It will be of interest to compare this European species with another species, described from Ceylon, namely, *Litus enocki* Howard. I have the type of the latter and of the former, a female specimen sent to the U. S. by Mr. Frederick Enock, of London, and determined by an English authority (see beyond). The slide containing it was labelled "Fredc. Enock, Preparer. *Order* Hymenoptera. *Family* Mymaridæ. *Genus* Litus. *Species* cynipseus ♀. The Fairy Fly. Spot lens, 2-inch to 1-inch."

The two species differ as follows: The European species is thrice the size of the species from Ceylon but nearly of the same color, a very intense, dark brown; however, all of the antennæ and the femora are concolorous, not lighter as in *enocki*. The antennæ differ in that the proximal funicle joint in *cynipseus* is distinctly much shorter than funicle joint 2, not much longer than wide; the two joints are slender and sub-equal in *enocki*;

also in the European species the fourth funicle joint is shorter and thicker than in *enocki* and the antennal club much stouter, comparatively enormous. The fore wings differ very much in shape, having a pronounced curve in *enocki* but nearly straight in *cynipseus* and more slender. The caudal wings are more similar but they are dusky and spotted with white in *cynipseus* and appear to lack the line of discal cilia along one margin, bearing only the midlongitudinal line of discal cilia. Also in *cynipseus* the tarsal joints are longer. Another difference is that the scape of the European species along each margin is serrated, each serration giving origin to a seta; this is especially true of the outer margin but probably the whole surface of the scape is roughened, seen thus only in outline at the margins. In *cynipseus,* the strigil is strong. The two species agree, or nearly, in other points but enough has been said to show that they are very distinct from each other.

SUBFAMILY MYMARINAE.

Tribe Anaphini.

Genus *Anaphes* Haliday.

1. Anaphes punctum (Shaw) Haliday.

I have as a loan a single female specimen of a mymarid which has been identified by an English entomologist (E. A. Fitch—See Enock, Trans. Ent. Soc., of London, 1909, p. 450), as the above species and transmitted to Dr. L. O. Howard, by Mr. Fred. Enock, of London. It will be of value to point out how this species differs from the American species so far known and described. It is most closely related to *hercules* Girault but is brown instead of black and differs structurally from that species in having both wings somewhat broader and the proximal tarsal joints of the intermediate legs distinctly longer. Otherwise, they are very much alike. However, both appear to be good species. The British species does not resemble closely any of the other American forms of the genus with the possible exception of *pratensis* Foerster which, as I have published elsewhere, is a member of our fauna, providing my identification be correct. The species *punctum* differs from *pratensis* in being different in color, brown instead of black and structurally in possessing differently shaped antennæ; thus, in

pratensis the antennal club is short and stout, only twice longer than broad, thrice longer than broad in the other species and in *pratensis* also, the second funicle joint is distinctly a third longer and much narrower than funicle joint 6, only a fourth longer and but slightly narrower in *punctum*. (The specimen of *pratensis* was captured in Illinois and compared with specimens in the United States National Museum labelled, "Anaphes pratensis Först., France." I have written of them elsewhere).

Tribe Mymarini.

Genus *Polynema* Haliday.

1. Polynema euchariforme Haliday.

A female of this species, loaned to me by Dr. L. O. Howard and also identified by the English gentleman mentioned above and received in the U. S. through the kindness of Mr. Fred. Enock, should also receive some attention in this connection. As represented here, the species is different from any American form so far known to me, but is much like both *consobrinus* Girault and *striaticorne* Girault in the shape and ciliation of the fore wing. However, it differs from the former in that the fore wings are noticeably less clavate and consequently somewhat narrower; the antennæ differ but not very much, in *euchariforme* the funicle joints all slightly shorter; other differences are the shorter posterior femora and abdominal petiole and the uniformly pallid yellowish legs in the British species. The difference from *striaticorne* is more pronounced—the much less robust body, shorter leg and antennal segments—specifically, in *euchariforme* the third funicle joint is only about half the length of the second, in *striaticorne* three-fourths the length of the second and nearly twice longer of itself than that of the British species—narrower wings and differently colored legs. The fore wings in *euchariforme* bear about ten longitudinal lines of discal cilia at their widest blade portion and their longest marginal cilia are nearly as long as the greatest width of those wings. The club and funicle of antennæ and the distal tarsal joints are concolorous with the brownish black of the body.

At this same time it is desirable to compare this British species with several other European forms which I happen to

have with me. These two are *Polynema flavipes* Walker and *P. fumipenne* Walker; the specimens of the former are from the collections of the United States National Museum and of the latter (two specimens) from Mr. C. O. Waterhouse, sometime of the British Museum. The specimens of *fumipenne* (identified by Mr. Waterhouse, perhaps in association with Mr. Enock) I have described elsewhere; it differs very pronouncedly from *euchariforme;* the fore wings are very much broader, their discal ciliation very much coarser, the body and appendages much longer and slenderer, the legs more intensely colored (orange) and thus the two species should never be confused. The species *flavipes* differs nearly as much, but the discal ciliation of the fore wings in this species is moderately fine, not coarse; the coloration is somewhat as in *fumipenne.* L

Thus, here are three distinct British species of the genus which differ from any American form known to me and I describe a fourth below.

The following specimens: *Polynema euchariforme* Haliday —a single female on a slide loaned by Dr. L. O. Howard and labelled "Fredc. Enock, preparer. *Order* Hymenoptera. *Family* Mymaridæ. *Genus* Cosmocoma. *Species* euchariformis ♀. The Large Fairy Fly. Spot lens, 2-inch to ½-inch."

Polynema flavipes Walker—A pair found mounted on tags in the United States National Museum collection, now remounted in xylol-balsam and labelled "Polynema flavipes, Walker, ♀ ♂ Am. Ent. Soc. To be returned."

Polynema fumipenne Walker—Two females kindly sent to me by Mr. C. O. Waterhouse, now mounted in xylol-balsam and labelled, "*Cosmocoma fumipennis* Walker. Eng. Richmond, 24.9.09. C. Waterhouse, Whitehouse Plantations."

2. Polynema brittanum new species.

Normal position.

Male.—Length, 0.80 mm. Moderate to moderately small for the genus. About the same size as *euchariforme* with which it was confused.

General color brownish black or black suffused with some brown, including venation, antennæ, intermediate and posterior femora and tibiæ and distal tarsal joints. Pedicel of antenna suffused with yellowish. Trochanters, knees, tips of tibiæ, proximal three tarsal joints and cephalic legs yellowish, the tarsal joints paler. Wings hyaline.

Falls in with the group of allied species containing *consobrinus* Girault, *aspidioti* Girault, *howardii* Ashmead, *striaticorne* Girault and *euchariforme* Haliday, and most closely allied with *consobrinus* and *striaticorne;* it resembles both casually. However, it differs from *consobrinus* in having the discal ciliation of the fore wing finer and more uniform, the wing somewhat wider (about 16 longitudinal lines of discal cilia across the widest part), its marginal cilia distinctly shorter (the longest about two-thirds the greatest wing width), especially noticeable along the cephalic margin of the blade; the marginal cilia of the posterior wings are likewise shorter, about a half shorter; the proximal tarsal joints are much longer and slender, those of the cephalic tarsi for example, being at least a third longer. The two species otherwise alike as far as could be seen.

From *striaticorne* Girault, the species differs about as much as it does from *consobrinus,* in having the marginal cilia of the fore and posterior wings shorter but the fore wing is somewhat narrower than in *striaticorne;* the legs are formed very much as in the latter but the intermediate and caudal femora are distinctly shorter; the joints of the flagellum are uniformly shorter than those of *striaticorne,* about a fourth or more shorter. Thus, *brittanum* is more nearly like the last named species, especially in tarsal segments, color and discal ciliation of the fore wings.

From the species *howardii* Ashmead it may be distinguished much as *striaticorne* may be, namely by lacking the peculiar arrangement of the marginal cilia of the fore wing; also *brittanum* has finer discal ciliation in the fore wing which is also narrower and bears (as does also the caudal wing) much shorter marginal cilia. The caudal wing in *brittanum* is fumated distad as it is slightly with *howardii.*

From the species *aspidioti* Girault, *brittanum* differs again in lacking the peculiar arrangement of the marginal cilia of the fore wings and in bearing distinctly shorter marginal cilia on that wing; again, in having the wing differently shaped: around the apex of the fore wing in *aspidioti* the marginal cilia shorten just at the apex; in *brittanum* no shortening occurs but a gradual lengthening from the cephalic wing margin; *brittanum* differs from *aspidioti* in the color of the legs, all tarsi

being pallid yellowish to the distal joint as in the cephalic and intermediate legs of *aspidioti,* but all of the caudal tarsus in the latter species is brown black. The antennal joints are slightly longer in *brittanum.*

From *euchariforme* Haliday, with which this species was confused as shown below, *brittanum* differs in bearing distinctly broader fore wings which bear distinctly shorter marginal cilia along the cephalic wing margin and in having darker legs. Its wings (speaking of *brittanum*) are moderately broad.

(From one specimen, two-thirds-inch objective, one-inch optic, Bausch and Lomb).

Female.—Unknown.

Described from a single male specimen loaned to me for study by Dr. L. O. Howard, and being another one of the series of English species sent to the U. S. by Mr. Fred. Enock, of London. The slide bearing it was labelled, "Fredc. Enock, preparer. *Order* Hymenoptera. *Family* Mymaridæ. *Genus* Cosmocoma. *Species* euchariformis ♂. The Large Fairy Fly. Spot lens, 2-inch to ½-inch." Thus, the species was taken for the male of *euchariforme* Haliday.

Habitat.—England (?London or vicinity).

Type.—Catalogue No. 14,207, United States National Museum, Washington, D. C., one male in balsam.

I have pointed out in this brief paper the characteristics of some of the European forms of the family Mymaridæ, evidently some of the more common and abundant of the species occurring in England. They have all proved to be distinct from our more common American species. *Anaphes pratensis* Foerster, however, occurs in this country as noted above and elsewhere; I have no knowledge concerning whether or not it may have been introduced or whether it may not have originated here. As concerns the identification of these species I am not altogether satisfied, since the European Mymaridæ are now in a state of much confusion due to their long neglect and also because in most cases the authority for identifications is not definitely stated.

ENTOMOLOGICAL NEWS.

[The Conductors of ENTOMOLOGICAL NEWS solicit and will thankfully receive items of news likely to interest its readers from any source. The author's name will be given in each case, for the information of cataloguers and bibliographers.]

TO CONTRIBUTORS.—All contributions will be considered and passed upon at our earliest convenience, and, as far as may be, will be published according to date of reception. ENTOMOLOGICAL NEWS has reached a circulation, both in numbers and circumference, as to make it necessary to put "copy" into the hands of the printer, for each number, four weeks before date of issue. This should be remembered in sending special or important matter for a certain issue. Twenty-five "extras," without change in form and without covers, will be given free, when they are wanted; if more than twenty-five copies are desired, this should be stated on the MS. The receipt of all papers will be acknowledged. Proof will be sent to authors for correction only when specially requested.—Ed.

PHILADELPHIA, PA., OCTOBER, 1911.

During the past twelve months three papers—and doubtless others—have appeared urging a reformation in the preparation and manner of publication of scientific papers.

One of these, "How to Prepare a Paper for Publication," read at the Marine Biological Laboratory, Wood's Hole, Mass., July 5, 1910, by C. Bowyer Vaux, of the Wistar Institute of Anatomy and Biology, Philadelphia, will be forwarded by the Waverly Press, Williams & Wilkins Co., Proprietors, Baltimore, Maryland, to anyone interested. This pamphlet of twenty pages describes the various technical processes involved in editing, making and printing both text and illustrations, and publishing, and offers many suggestions to authors, as well as to the others concerned.

The other two papers appeared in June, 1911, in Number 2, Volume IV, of the Annals of The Entomological Society of America. Prof. T. D. A. Cockerell offers "Some Suggested Rules to Govern Entomological Publications," particularly in regard to descriptions of new species. Mr. R. A. Muttkowski's "The Composition of Taxonomic Papers" is longer (it occupies 24 pages) and is directed especially at authors, although editors also are involved. It proposes standards for descriptions, colors, nomenclature, keys to genera and species, indices, titles and reprints.

That reformation and standardization are highly desirable most will probably admit, even though we may not agree on all the details. The first step in the reform is to acquaint all concerned with the proposals which have been made and the NEWS can not urge too strongly the reading of these three articles. If each author will then take care to improve his own manuscripts as suggested, great progress will be made. The refusal by editors of manuscripts which do not conform to well-considered requirements may be a future movement in the same direction.

Notes and News

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

AN ENTOMOLOGICAL POST CARD.—No. 403 of Raphael Tuck & Sons' Educational Series of Post Cards, entitled "Butterflies," contains five colored embossed pictures of East Indian butterflies with their technical names, habitats and a brief nine-line statement in small type of the life history of Lepidoptera in general and the features distinguishing butterflies from moths.

LEPIDOPTERA OF ST. LOUIS, MO., 1910.—I think *Strenoloma lunilinea* ought to be added to the list of Heterocera unusually common in the vicinity of St. Louis, Mo., during 1910 (See the NEWS for July, 1911, page 323). During the latter part of summer this species was a veritable pest to the collector at sugar.—EDWIN P. MEINERS, St. Louis, Mo.

EREBUS ODORA in the United States.—We have just captured here at Madison, Wisconsin, July 7th, 1911, following several days of extreme heat and south winds, an almost perfect specimen of the West Indian *Erebus odora*.—J. G. SANDERS.

On August 6, 1911, at Sachem Head, Connecticut, on Long Island Sound, Mr. Richard Shryock brought to me a vigorous *E. odora* taken in a house there.—P. P. CALVERT.

CABBAGE WHITE BUTTERFLIES.—Would some entomologist state if he knows of any reference to the fact that the larvae of the Large Cabbage White seek to arrange themselves in pairs—male and female—when they pupate?

Can the sexes be distinguished externally in the larval and in the pupal stages?—E. W. READ, Sutherland Technical School, Golspie, England. (From *Nature*, for July 20, 1911.)

Catocala dulciala, described by Grote, was collected by Dr. M. G. Conklin, of Dayton, Ohio, and not by me.—G. R. Pilate, Loma Linda, California.

Improved Methods of Photographing the tunnels of bark-beetles are suggested in a German translation from the Russian of P. Winogradoff, in *Entomologische Blätter,* VII, pp. 146-147, 1911.

Mr. Robert Newstead, lecturer in economic entomology and parasitology in the Liverpool School of Tropical Medicine has been appointed to the newly-established Dutton Memorial Chair of Entomology in the University of Liverpool.—*Science.*

Book-Destroying Insects.—An exhibition of books collected from different parts of the world by William R. Reinick, of the Free Library of Philadelphia, showing the various ways in which they are destroyed by insect life, was held in the library of the University of Pennsylvania, Thirty-fourth and Locust streets, for two weeks commencing July 28, 1911. Mr. Reinick also delivered an illustrated lecture upon "Insects Destructive to Books" in the lecture hall of Houston Hall, of the same university, on July 28.

Honorary Degrees conferred on Entomologists.—On June 14, 1911, the University of Pittsburgh, Pennsylvania, conferred the degree of doctor of science on Dr. Henry Skinner, Editor Emeritus of the News. A few days later, The George Washington University, of Washington, gave to Dr. L. O. Howard, Chief of the U. S. Bureau of Entomology, the honorary degree of doctor of medicine, for "distinguished services to science in relation to preventive medicine."

Myriads of Moths.—Kensington, (Philadelphia) was invaded last night (July 9, 1911) by myriads of a small species of moth or "miller," which swarmed in the streets and stores so thickly that business and even traffic was for a time suspended.

They flew so thickly in the streets that hundreds of pedestrians took refuge in the stores along Kensington and Frankford avenues and the streets running between them. They then began to fly into the stores, and at the lights, so that merchants had to close their doors and discontinue business while they secured brooms and swept out the dead ones.

In many places the sidewalks were covered to the depth of an inch for a block or more, and by getting into the eyes, nostrils, ears and mouths of pedestrians the little "millers" almost completely stopped traffic.

A Second and Ritner streets trolley car was completely held up. Without any notice a vast company of the "millers" swarmed through the open window on the front platform, blinding and choking the motorman, and doing the same for the passengers and conductor.

The motorman, John Sirch, stopped his car until he and his conductor, George Sands, and the passengers could rid themselves of the invaders.

Friday night is the busiest time of the week for the Kensington merchants, and it is said that the enforced discontinuance of business for an hour or more last night means the loss of several thousands of dollars to the business men.

The great army of moths eventually destroyed itself by flying against the street lights and store windows and practically carpeted the entire section.—Philadelphia *Public Ledger,* July 10, 1911.

[Some of the moths were observed also at the Academy of Natural Sciences and were identified by Dr. Henry Skinner as *Tortrix fumiferana* Clemens.]

A Hemipterous Fisherman.—The habits of the Belostomidae are known in a general way, but specific examples seem to be scarce in literature. Mr. J. R. Bueno (Journal of New York Entomological Society, XVIII, 143) cities Uhler (Standard, now Riverside, Natural History, II, 256), Howard (Insect Book, 278), and others (Proceedings Washington Entomological Society, III, 87) to the effect that the larger species of the family feed upon small aquatic animals, even fish, and that they may become quite harmful if abundant where young fish are reared by artificial methods.

On September 3d, 1910, the following letter, with accompanying specimens, was received at the Experiment Station and referred to me.

Lyme, Conn., Sept. 2, 1910.

Agricultural Expt. Station.

Gentlemen:

I am sending you under separate cover a bug for identification.

While watering my cattle at a small stream, my attention was drawn to a small fish flopping in the water near the shore. Thinking it was caught in the grass, I poked it into the stream, when I saw that it was caught by a bug.

The bug had its three pairs of legs around the fish so tightly that the fish was creased by the legs. The bug had its "beak" stuck into the seam under the fish's under jaw (gills), and seemed to be sucking the life out of it.

I took bug and fish to my home and showed them to my family, and it was not until a pin was about to be thrust through them that the bug released the fish, which by that time was dead.

I am greatly interested, as I never before heard of a bug preying upon small fish.

Respectfully,

Chas. H. Davison.

The bug in question was *Lethocerus* (*Belostoma*) *americanus* Leidy, and measured about two and one-fourth inches in length. The fish was a young banded pickerel, *Lucius americanus* Gmelin, nearly three and five-eighths inches long. It was kindly identified for me by Professor Bashford Dean. I send Mr. Davison's letter, thinking that the observation may be of some interest to readers of the NEWS, as it records a specific instance of a fish being captured by one of these bugs.—W. E. BRITTON, New Haven, Conn.

THE COLLECTION AND LIBRARY of the well-known Dipterologist Victor V. Roeder, who died in Hoyen, Anhalt, Germany, Dec. 26 1910, have been presented to the Zoological Museum of the University of Halle.

THE CAMPAIGN AGAINST HOUSE FLIES.—San Antonio, Tex., July 4.—One and a quarter million dead flies in one heap, contributing a pile three feet high and five feet wide, represents the slaughter wrought by small boys as the result of a fly-killing contest which closed here today. Robert Basse carried off first prize of $10 with an official record of 484,320 dead flies.—*Newspaper.*

Worcester, Mass., July 13.—More than 10 barrels of flies were gathered by 232 contestants in an anti-fly crusade, which began on June 22 and ended tonight. The winner, who gets a prize of $100, turned in 95 quarts, or a total of 1,219,000 flies captured in traps of his own construction, and claims the world's championship. He is Earl C. Bousquet, 12 years old.—*Newspaper.*

CHANGES OF POSITION AND OF ADDRESS.—Dr. Alex. D. MacGillivray has become Assistant Professor of Systematic Entomology at the University of Illinois, and his address is now 604 East John Street, Champaign, Illinois. Members of the Entomological Society of America, of which Dr. MacGillivray is Secretary-Treasurer, are requested to take notice of his removal.

Dr. J. Chester Bradley has accepted the position of Assistant Professor of Systematic Entomology in Cornell University, as the successor of Dr. MacGillivray; his address is The Entomological Laboratory, Cornell University, Ithaca. New York.

Mr. A. A. Girault, recently at Urbana, Illinois, has been appointed Entomologist to the Department of Agriculture of Queensland, and should be addressed at Brisbane, Queensland, Australia.

THE SCHILSKY COLLECTION OF COLEOPTERA.—The collection of palaeartic Coleoptera formed by Herr J. Schilsky, the present President of the Deutsche Entomologische Gesellschaft, has come into the possession of the Royal Zoological Museum in Berlin. It consists of 107,814 specimens of 8181 palaeartic species. It includes types of about 500 species described by its possessor, especially in the families Dasytidae,

Anobiidæ, Bostrichidæ, Cioidæ, Sphindidæ, Mordellidæ, Bruchidæ, Rhynchitidae, Apoderidae and many Curculionidae, particularly the genera *Apion, Phyllobius, Polydrosus,* etc. There are also many specimens which have been compared with the types of Desbrochers, Eppelsheim, Ganglbauer, V. Heyden, Kraatz, Reitter, Weise and other authors. Further details will be found in *Deutsche Entomologische Zeitschrift,* 1911, pp. 107-109. The same museum has also acquired the "greatest special collection of Italian beetles," that of Prof. Fiori (l. c. p. 353).

Entomological Literature.

COMPILED BY E. T. CRESSON, JR., AND J. A. G. REHN.

Under the above head it is intended to note papers received at the Academy of Natural Sciences, of Philadelphia, pertaining to the Entomology of the Americas (North and South), excluding Arachnida and Myriapoda. Articles irrelevant to American entomology will not be noted; but contributions to anatomy, physiology and embryology of insects, however, whether relating to American or exotic species, will be recorded. The numbers in **Heavy-Faced Type** refer to the journals, as numbered in the following list, in which the papers are published, and are all dated the current year unless otherwise noted. This (*) following a record, denotes that the paper in question contains description of a new North American form.

For record of Economic Literature, see the Experiment Station Record, Office of Experiment Stations, Washington.

4—The Canadian Entomologist. **5**—Psyche, Cambridge, Mass. **7**—U. S. Department of Agriculture, Bureau of Entomology. **9**—The Entomologist, London. **12**—Comptes Rendus, L'Academie des Sciences, Paris. **22**—Zoologischer Anzeiger, Leipzig. **46**—Tijdschrift voor Entomologie. **50**—Proceedings, U. S. National Museum. **51**—Novitates Zoologicae, Tring, England. **59**—Sitzungsberichte, Gesellschaft der naturforschenden Freunde, Berlin. **73**—Archives, Zoologie Experimentale et Generale, Paris. **75**—Annual Report, Entomological Society of Ontario, Toronto. **84**—Entomologische Rundschau. **92**—Zeitschrift fur wissenschaftliche Insektenbiologie. **102**—Proceedings, Entomological Society of Washington. **123**—Bulletin, Wisconsin Natural History Society, Milwaukee. **131**—Proceedings, South London Entomological and Natural History Society. **143**—Ohio Naturalist. **166**—Internationale Entomologische Zeitschrift, Guben. **179**—Journal of Economic Entomology. **186**—Journal of Economic Biology, London. **193**—Entomologische Blatter, Nurnberg. **241**—Marcellia. Rivista Internazionale di Cecidologia. Avellino. **245**—Zeitschrift, Naturwissenschaften, Halle. **251**—Annales, Sciences Naturelles, Zoologie, Paris. **278**—Annales, Societe Zoologique Suisse et du Museum

d'Histoire de Geneve, Revue Suisse de Zoologie. **322**—Journal of Morphology, Philadelphia. **336**—Board of Agriculture, Trinidad. **338**—University of Minnesota Agricultural Experiment Station, St. Paul. **339**—Kosmos. We Lwowie (Limberg).

GENERAL SUBJECT. Barber, H. S.—A simple trap-light device, **102,** 1911, 72-73. **Chapman, T. A.**—On insect teratology (remarks to introduce a discussion on Teratological specimens), **131,** 1910-11, 39-53. **Gibson, A.**—Basswood or linden insects IV, **75,** 1910, 99-101. **Girault, A. A.**—Incidental observations on a queen of Polistes pallipes while founding a colony, including fragmentary biological notes, **123,** 1911, 49-63. **Heuer, A.**—Ein erprobter puppenkasten, **166,** v, 77. **Hewitt, C. G.**—The teaching of insect life and its practical importance, **18,** 1911, 63-67. Some observations on the practical importance of the study of parasitic insects, **75,** 1910, 62-64. The more injurious insects in Canada during the year 1910, **75,** 1910, 27-29. **Howard, L. D.**—Brief notes of two recent trips, **102,** 1911, 77-79. **Kaye, W. J.**—An entomological trip to South Brazil, **131,** 1910-11, 54-66. **Lefroy, H. M.**—The training of an economic entomologist, **186,** 1911, 50-58. **Needham, J. G.**—The role of insects in water-life, **75,** 1910, 42-43. **Pemberton, C. E.**—The sound-making of Diptera and Hymenoptera, **5,** 1911, 114-118. **Sitowski, L.**—Merkwurdige mimikry-beispiele der heimischen insekten fauna (Native), **339,** 1911, 251-262. **Swaine, J. M.**—Some insects of the larch, **75,** 1910, 81-88. **Trotter, A.**—Contributo alla conoscenza delle galle dell' America del Nord, **241,** x, 28-61 (*). **Washburn, F. L.**—Cut worms, army worms and grasshoppers, **338,** Bull. No. 123. **Webster, F. M.**—The diffusion of insects in North America, **102,** 1911, 2-4.

APTERA & NEUROPTERA. Banks, N.—Paranthaclisis hageni in Texas, **102,** 1911, 71. **Holmgrem, N.**—Bemerkungen uber einige termiten-arten, **22,** xxxvii, 545-553. **Jacobson, E.**—Mallophaga transported by Hippoboscidae, **46,** 1911, 168-169. **Jordan & Rothschild**—Katalog der Siphonapteren des Koniglichen Zoologischen Museums in Berlin, **51,** xviii, 57-89. **Lucas, W. J.**—The natural order of insects—Neuroptera, **131,** 1910-11, 66-73. **Moulton, D.**—Synopsis, catalogue and bibliography of North American Thysanoptera, with descriptions of n. sp., **7,** Tech. Ser. No. 21, 56 pp. (*). **Muttkowski, R. A.**—New records of Wisconsin dragon flies, II, **123,** 1911, 28-41 (*). **Rothschild, N. C.**—On the bat-fleas described by Kolenati, **51,** xviii, 48-56. Some n. g. and sp. of Siphonaptera, **51,** xviii, 117-122. **Urich, F. W.**—The cacao thrips, **336,** 14 pp.

ORTHOPTERA. Allard, H. A.—The stridulations of two interesting Locustidae, **5,** 1911, 118-119. Xiphidion stridulations, **102,** 1911, 84-87. **Caudell, A. N.**—A new cactus-frequenting Orthopteron

from Texas, **102,** 1911. 79-86 (*). **Criddle, N.**—The migration of some native locusts, **75,** 1910, 60-61. **Severin & Severin.**—A few suggestions on the care of the eggs and the rearing of the walking-stick, Diapheromera femorata, **5,** 1911, 121-123. The life history of the walking-stick, Diapheromera femorata, **179,** 1911, 307-320.

HEMIPTERA. Davis, J. J.—List of the Aphididae of Illinois with notes on some of the species, **179,** 1911, 325-331. **Gillette, C. P.**—Two Rhopalosiphum species and Aphis pulverulens, n. sp., **179,** 1911, 320-325 (*). **Jacobson, E.**—Biological notes on the Hemipteron Ptilocerus ochraceus, **46,** 1911, 175-179. **Jarvis, T. D.**—The coccidae of Canada, **75,** 1910, 64-76. Aleyrodidae of Ontario, **75,** 1910, 78-81. **Kirkaldy, G. W.**—Some remarks on the reduviid subfamily Holoptilinae and on the species Ptilocerus ochraceus, **46,** 1911, 170-174. **Lindinger, L.**—Beitrage zur kenntnis der schildlause und ihre verbreitung II, **92,** 1911, 86-90, 126-130 (cont.). **McDermott, F. A.**—The attack of a larval Hemiptera upon a caterpillar, **102,** 1911, 90-91. **Pemberton, C.**—The California Christmasberry tingis, **179,** 1911, 339-343. **Quayle, H. J.**—Locomotion of certain young scale insects, **179,** 1911, 301-306. **Sasscer, E. R.**—Catalogue of recently described Coccidae III, **7,** Tech. Ser., No. 16, pt. iv. **de la Torre Bueno, J. R.**—On Halobaslopsis beginii, **4,** 1911, 226-228. **Urich, F. W.**—Identification of the sugar cane froghopper, **336,** Soc. Pap. No. 448,, 3 pp. Interim report of froghoppers, **336,** 8 pp., 1910.

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A.—A new Canadian Geometrid, **4,** 1911, 225-226 (*). **Heath, E. F.**—Notes of captures of Lepidoptera at sugar and light during 1910 at my farm on Long River, near Cartwright, Southern Manitoba, and also of the results of the overhauling of several cases of duplicates, **4,** 1911, 245-250. **Jordan, K.**—Descriptions of new Saturniidae. Some new Sphingidae, **51,** xviii, 129-136. **Kaye, W. J.**—Neuration of Lepidoptera, **131,** 1911, 81-93. **Pearsall, R. F.**—Geometridae as yet undescribed, **4,** 1911, 250-253 (cont.) (*). **Rothschild, W.**—New Aegeriidae. New syntomidae in the Tring Museum, **51,** xviii, 24-47 (*). **Sasscer, E. R.**—Note on the cork-covered orange tortricid. (Platynota rostrana), **179,** 1911, 297-298. **Schaus, W.**—New sp. of Heterocera from Costa Rica, **11,** vii, 612-634. Descriptions of six new American Heterocera, **102,** 1911, 42-44. **Stobbe, R.**—Ueber das abdominale sinnesorgan und uber den gehörsinn der Lepidopteren mit besonderer berucksichtigung der Noctuiden, **59,** 1911, 93-105. **Strand, E.**—Eine neue Pericopiide aus Brasilien, **166,** v, 77. **Sweet, L. W.**—Geometrid notes. A new Eupithecia, **4,** 1911 255-256 (*). **Wolley Dod. F. H.**—Further notes on Alberta Lepidoptera, **4,** 1911, 229-236, 281-286.

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COLEOPTERA. Bishopp, C. F.—An annotated bibliography of the Mexican cotton boll weevil, **7,** Circ. No. 140. **Bugnion, E.**—Les pieces buccales et le pharynx d'un Staphylin de Ceylan **278,** 1911, 135-152. **Buhk & Baur.**—Beobachtungen uber die lebensweise des Hydroporus sanmarki, **92,** 1911, 96-97. **Gahan, A. B.**—Some notes on Parandra brunnea, **179,** 1911, 299-301. **Gahan, C. J.**—On

some recent attempts to classify the Coleoptera in accordance with their phylogeny, **9,** 1911, 214-219, 259-262 (cont.). **Guppy, P. L.**—The life history and control of the cacao beetle, **336,** Circ. No. 1, 34 pp. Preliminary notes on the cocoa beetles, **336,** 6 pp., 1910. **Hubenthal, W.**—Die gattung Pseudopsis, **193,** 1911, 97-103. **Jeannel, R.**—Revision des Bathysciinae. Morphologie. Distribution geographique, Systematique, **73,** xlvii, 1-641. **Krizenecky, J.**—Neue monstrositaten bei coleopteren, **193,** 1911, 113-119. **Mann, W. M.**—On some northwestern ants and their guests, **5,** 1911, 102-109 (*). **Marlatt, C. L.**—The mango weevil (Cryptorhynchus mangiferae), **7,** Circ. No. 141. **Mitchell & Pierce**—The weevils of Victoria Co., Texas, **102,** 1911, 45-62 (*). **Morris, F. J. A.**—Beetles found about foliage, **75,** 1910, 45-51. **Nusslin, O.**—Phylogenie und system der borkenkäfer, **92,** 1911, 77-82, 109-112 (cont.). **Pierce, W. D.**—Some factors influencing the development of the boll weevil, **102,** 1911, 111-117. **Piper, C. V.**—Notes on Pterostichus johnsoni, **102,** 1911, 62-64. **Popenoe & Smyth**—An epidemic of fungous diseases among soldier beetles, **102,** 1911, 75-76. **Schaeffer, C.**—Sphaeridium bipustulatus found in the neighborhood of N. Y. City, **4,** 1911, 254-255. **Strohmeyer, O.**—Die biologische bedeutung sekundarer geschlechtscharaktere am kopfe weiblicher Platypodiden, **193,** 1911, 103-107. **Swaine, J. M.**—A few new Ipadae, **4,** 1911, 213-224 (*). **Wheeler, W. M.**—On Melanetaerius infernalis, **5,** 1911, 112-114. **Winn, A. F.**—The horse-radish flea-beetle (Phyllotreta armoraciae), **75,** 1910, 59-60.

HYMENOPTERA. **Cockerell, T. D. A.**—Names applied to bees of the genus Nomada found in North America, **50,** xli, 225-243. **Cornetz, V.**—La conservation de l'orientation chez la fourmi, **278,** 1911, 153-173. **Crawford, J. C.**—Descriptions of new Hymenoptera, **50,** xli, 267-283 (*). A n. sp. of the genus Cheiloneurus, **102,** 1911, 126 (*). **Crawford & Bradley**—A new Pelecinus-like genus and species of Platygasteridae, **102,** 1911, 124-125 (*). **Girault, A. A.**—Two n. sp. of Trichogrammatidae from the U. S. and West Australia, **9,** 1911 197-199 (*). **Luderwalt, H.**—Nestbau von Neocorynura erinnys, **92,** 1911, 94-96. **Mann, W. M.**—On some northwestern ants and their guests, **5,** 1911, 102-109. **Rohwer, S. A.**—Descriptions of new species of wasps with notes on described species, **50,** 1911, 551-587 (*). A preoccupied name in wasps (Didineis vierecki n. n. for D. crassicornis Vier.), **102,** 1911, 4. A preoccupied name in saw-flies. (Pteronus wrighti n. n. for P. californicus Marlatt), **102,** 1911, 31. **Rudow, Dr.**—Afterraupen der blattwespen und ihre entwicklung, **84,** xxviii, 95, 118-119. **Sasscer, E. R.**—Notes on a saw fly injurious to ash, **102,** 1911, 107-108. **Schrottky, C.**—A new Dianthidium from Paraguay, **102,** 1911, 14-15. **Viereck, H.**

L.—Hymenoptera in Smith's insects of New Jersey, 3rd edition, 1910, **102,** 1911, 93-99. Two genera of Ichneumonoidea, **102,** 1911, 123. **Wheeler, W. M.**—Two fungus-growing ants from Arizona, **5,** 1911, 95-101 (*). The ant-colony as an organism, **322,** xxii, 307-325.

Lepidopterorum Catalogus.—W. Junk of Berlin announces that he has undertaken the publication of a catalogue of the Lepidoptera of the world, similar to the Coleopterorum Catalogus, of which 32 parts have been issued in 1910 and 1911. The catalogue of Lepidoptera will be edited by Prof. Ch. Aurivillius, of the Swedish Academy of Sciences, and H. Wagner, formerly assistant to Prof. Standfuss and now at the Entomological National Museum of Berlin. Each of the 61 families of Lepidoptera will be entrusted to a leading specialist.

Hubner's Exotic Butterflies.—A prospectus signed by W. F. Kirby, dated Chiswick, London, April, 1911, announces a new English fac-simile edition of Hübner's "Sammlung exotischer Schmetterlinge" (1806-1838?) in three volumes with 490 hand colored plates, together with the "Zuträge" to the same by Hübner and Geyer (1818-1837) in one volume with 170 hand colored plates. The original edition of the "Sammlung" contained hardly any text, while that of the "Zuträge" was complete. This new English edition is limited to 50 copies. The publishers are V. Verteneuil and L. Desmet, 60-62, rue T'Kint, Brussels. Mr. Kirby says "In writing letter press to Hübner's 'Sammlung exotischer Schmetterlinge,' I have paid special attention to the correct identification of the species figured, and in one or two cases I have found it necessary to propose new names. I have not given descriptions, but sufficient synonymy and explanations to bring Hübner's plates into range with later publications."

Doings of Societies.

ENTOMOLOGICAL SECTION, ACADEMY OF NATURAL SCIENCES, PHILA.

Meeting of May 25th, 1911. Mr. Philip Laurent, Director presiding. Eleven persons present.

Dr. Skinner exhibited specimens of *Libythea bachmanni* without palpi (snoutlers) received from Mr. J. R. Haskin of Los Angeles, California, and collected in Arizona. Also a new variety of *Megathymus yucca* received from Mr. W. C. Wood of New York. It is very small and black in color.

Dr. Calvert remarked that the highest altitudes in Costa Rica from which Odonata were recorded in the *Biologia Centrali-Americana* were 6000-7000 feet, the specimens from Irazu by H. Rogers (1877) in Dr. F. D. Godman's collection being so labeled. During the year which the speaker spent in Costa Rica, he had sought repeatedly for these insects at higher altitudes, especially on three visits (July and September, 1909, March, 1910) to the summit of Irazu (11,300 feet), but had not seen any Odonata at a greater height than about 6450 feet, near the village of Tierra Blanca. On July 13, 1909, he had visited the Laguna del Reventado, or Laguna del Dirumbo, at an altitude of 9100 feet on the southwest slope of Irazu, and although the locality and weather seemed favorable, not a single dragonfly was seen there. In July, 1910, Prof. J. Fidel Tristán was at this laguna and soon after wrote that he had seen "three big dragonflies flying on the laguna. They were of a dark color and I tried to catch them, but my efforts were not enough."

A still later letter from Prof. Tristán, dated May 11, 1911, was read by the speaker as follows: "On the 12th of April I went up to Tierra Blanca where I spent several days. * * * From Tierra Blanca I went up to Reventado twice and spent all the day collecting. The first day I went directly to the pond and remained there several hours. I looked with interest for the dragonflies and also I examined the roots and aquatic plants but I was unable to discover any insect or any larvae. From the pond I went along the river Reventado but the rain and the mist obliged me to go back. The second day I went again; the day was very clear but no insects were flying. I returned early and I left the narrow road and entered in the forest on the west side very near the old crater where in a small rivulet I discovered only one *pipilacha*.* As the place is very high I thought it was interesting to you and, of course, I tried to collect more but in the rest of the day (five hours) no other one was seen. Here is

*Native Costa Rican name for Odonata.—P. P. C.

a sketch of the place." The specimen sent by Prof. Tristán was exhibited; it is labeled, "In a rivulet near Laguna del Reventado, April, 1911, J. F. Tristán," in his handwriting. It is a male *Argia terira* Calvert and furnishes therefore the record for the highest altitude for Odonata in Central America, while the highest altitude for them in Mexico is about the same.* In New Mexico, Prof. Cockerell and Dr. Skinner have collected Odonata at 11,000 and 10,000 feet respectively.† The mean annual temperature of Laguna del Reventado is probably about 52 degrees F. (11 degrees C.), or 2 degrees F. lower than that of Philadelphia, and there is much precipitation throughout the year.

The same speaker also exhibited a female *Mecistogaster modestus* Selys which had transformed from a larva collected in bromeliads near Orosi, Costa Rica, by Señor C. Picado T. The imago and exuvia were also sent by Prof. Tristán. (Cf. Ent. News, xxi, pp. 264, 365).

Mr. Rehn exhibited specimens of *Doru aculeata* and *Manomera blatchleyi* from Indiana and Illinois. Both species are rare in collections and the latter is new to the Academy collection. The specimens were presented by Mr. Wm. J. Gerhard.

Mr. Laurent remarked that many collectors of Coleoptera started out to do "umbrella work" trusting to luck to cut a stick or club on reaching the collecting grounds—such a stick or club being but a "make shift" at the best. The speaker stated that nothing was better than a discarded broom-handle or rake-handle, which can be carried to the collecting ground in a fishing-rod bag; as carried without the bag, the collector may be taken for a tramp which often times is the case.

It was decided to hold the December meeting on the second Monday of that month.

HENRY SKINNER, *Recorder.*

*See Calvert, The Composition and Ecological Relations of the Odonate Fauna of Mexico and Central America. Proc. Acad. Nat. Sci., Phila., 1908, page 460.

†Biol. Cent. Amer., Neur., pp. 109, 110.

THE ST. LOUIS ENTOMOLOGICAL CLUB.

Since its inception, in April, 1904, the St. Louis Entomological Club has been active in promoting an interest in entomology, both systematic and ecologic, among its members.

The rules and regulations of the club provide that the membership be limited to twelve, so that each may have an opportunity of entertaining the rest at least once every twelve months.

An aspirant to membership must, by invitation, attend at least three consecutive meetings, after which a ballot vote is taken. To elect, the vote must be unanimous. The meetings are held on the second Saturday evening of each month, at the homes of the members or at any place that may be convenient to the host. The meetings are informal, being in the form of a friendly gathering of men interested in the study of insects.

The member who is to entertain the club notifies every other member by mail at least three days previous to the meeting. In case a member cannot attend he at once sends notice to that effect. The host is required to prepare and read a paper pertaining to some phase of entomology which is then discussed. These discussions usually prove a valuable aid to the members. The host is also required to prepare a simple luncheon for the members, of which only those who care to do so participate. I may add, confidentially, that as yet there has been no declination.

There are no officers except a Secretary, who keeps a record of the meetings and has charge of the papers read. There are no dues but in case of necessary printing each member is requested to pay an equal part.

The following are at this time members of the club, and each one extends a cordial invitation to correspond to anyone who wishes to obtain information regarding the insects of this section: Messrs. M. W. Schmidt, 721 Carpenter Place; Geo. H. Hosenfeldt, 3673 South Broadway; Paul Schroers, 3861a McRee Avenue; Ernst Schwarz, 6310 Newstead Avenue;

Henry J. Nelle, 4807 Milentz Avenue; Hermann Schwarz, 720 Clark Avenue, Webster Groves, Mo.; Louis Schnell, 5312 Murdoch Avenue; Chas. Dieckmann, 651 Atalanta Avenue, Webster Groves, Mo.; Frank Malkmus, 3850 Cottage Avenue.

HERMANN SCHWARZ, *Secretary.*

FELDMAN COLLECTING SOCIAL.

Meeting of April 19th, 1911, at 1523 S. 13th St., Philadelphia. Nine members present, Pres. Haimbach in the chair.

Mr. Daecke said many twigs had been collected at the beginning of the year around Harrisburg and already many Coleoptera and accompanying parasitic Hymenoptera have emerged. He had taken *Euherrichia granitosa* (Lep.) at Brown's Mills V-27 and had sent the record to Prof. Smith, but it was credited in the 1909 New Jersey List, p. 473, to *E. mollissima* Gn.

Mr. Geo. M. Greene exhibited a specimen of *Hemipeplus marginipennis* Le C. (Col.) collected by Mr. John Freeman, Phila., April 9, 1911, running on a newspaper. Dr. Castle has taken this species commonly in Florida on the palm, and said as this specimen was caught on Palm Sunday it was most likely brought here on the leaves for that day.

Meeting of May 17th, 1911, at 1523 S. 13th St., Philadelphia. Thirteen members were present. Vice-president Wenzel in the chair.

Prof. Smith said that *Serica iricolor* Say had been reported from Hammonton, New Jersey, May 10, 1911, and a few other localities as injurious to peach trees. The flight seems to be in late afternoon or early evening and as they fed on the young shoots the trees were almost completely stripped of the foliage they had at that time.

Pomphopoea aenea Say was reported as common on fruit blossoms in southern New Jersey; Mr. Wenzel recorded it from Malaga and Mr. C. T. Greene from Glassboro.

Prof. Smith continued to say that everywhere in literature the Plum Curculio is reported as hibernating under rubbish

and he had sent a man out for the species and in about three weeks' collecting had managed to get one specimen which he believed to be accidental. Later when specimens were caught they were perfectly fresh as though they had just emerged. Also stated that cut worms were very numerous.

Mr. Wenzel said he had found wire worms in great numbers at Malaga, N. J., May 14; two species mentioned were *Corymbites inflatus* Say and a species of *Cardiophorus*.

Mr. Daecke exhibited specimens of a Caddice fly, *Leptocella exquisita* Wlk., from Harrisburg, Pa., July 2, 09, which he said surprised him by its close resemblance to a Microlepidopter, *Adela ridingsella* Clem. *Haltica chalybea* Ill. has been reported as common from several counties of Pennsylvania on flowers of grape and *Odontota dorsalis* Thunb as very common on all plant life.

Mr. Harbeck exhibited and recorded *Psychomorpha epimensis* Dru. (Lep.) from Glassboro, N. J., April 30. Prof. Smith said it was at one time common in Essex Co., the larvae having the habit of rolling up the leaves of the grape.

Mr. Huntington gave a general description of the fauna and flora of Bermuda saying he was surprised at the scarcity of insect life, the only common things being flies. Described a large spider similar to the bird-killing spider of South America. Photos of many parts of the islands were shown.

Mr. C. T. Greene exhibited and recorded the following Diptera: *Polidea areos* Walk. Lehigh Gap, Pa., Sept. 6, 1909; *Leucostoma atra* Town., Lehigh Gap, Pa., Sept. 6, 1909; *Cholomyia inaequipes* Bigot, Castle Rock, Pa., August 29, 1909, and *Sarcophaga* (*Helicobia*) *quadrisetosa* Coq., Wenonah, N. J., August 21, 1910, all collected by himself.

Mr. Wenzel exhibited some Coleoptera collected this year by his son and himself among which were notable ten specimens of *Buprestis ultramarina* Say, Malaga, N. J., April 29 to May 14, and a specimen of the Californian Coccinellid *Coccinella transversoguttata* Fabr. which is the first New Jersey record.

Adjourned to the annex.—Geo. M. Greene, *Secretary*.

EXCHANGES.

Not Exceeding Three Lines Free to Subscribers.

☞ These notices are continued as long as our limited space will allow; the new ones are added at the end of the column, and only when necessary those at the top (being longest in) are discontinued.

Wanted for cash or good exchange, live fertilized females or fertile ova of *Versicolor*, *Pandorus*, *Achemon* and *Bicolor*; can supply fertile ova of hybrid *Actias selene*, *luna*, *Antherea mylitta* and others.—James L. Mitchell, 212 Indiana Trust Building, Indianapolis, Indiana.

Wanted addresses of reliable collectors or dealers in Florida, Texas, New Mexico and California for the exchange or purchase of Lepidoptera.—Carlo Zeimet, 170 William St., New York.

Butterflies—I will name **spread** North American butterflies. Many rare species for exchange.—Dr. Henry Skinner, Logan Square, Philadelphia, Penna.

Information wanted as to some efficient method of completely removing vestiture from the legs of Lepidoptera without injury to spines or spurs.—F. H. Wolley Dod, Millarsville, Alta, Canada.

Books—Jardine's Nat. Hist., 40 vols., 1st issue; Entomologist's Annual, complete, 20 vols. in original covers, fine sets; Stephen's Mandibulata, 7 vols. and suppl., and a quantity of Riker mounts for exchange for books on Lepidoptera.—R. C. Williams, 254 S. 13th St., Phila., Pa.

Identified specimens of Philippine Lepidoptera to sell at ⅓ dealers rates. 100 species, including 10 *Papilios*, *Hestia leuconoe*, *Ornithoptera nephereus*, for $25. A few to exch.—O. B. Burrell, Lamao, Bataan, P. I.

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